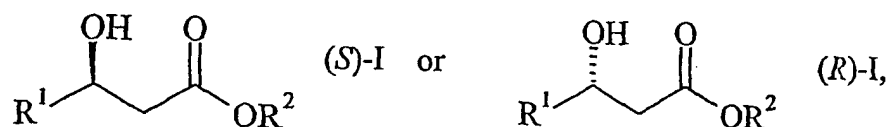


## AMENDMENTS TO THE CLAIMS

This Listing Of Claims will replace all prior versions, and listings, of claims in the application.

### Listing Of Claims:

Claim 1 (Currently Amended): A process for the preparation of an enantiomerically pure (S)- or (R)-4-halo-3-hydroxybutyrate (R)-4-halo-3-hydroxybutyrate of formula:

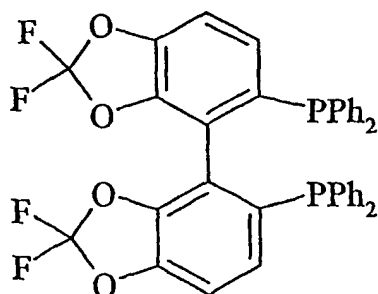


wherein R<sup>1</sup> is CH<sub>2</sub>X, CHX<sub>2</sub> or CX<sub>3</sub> and X independently represents Cl and/or Br and wherein R<sup>2</sup> is C<sub>1-6</sub>-alkyl, C<sub>3-6</sub>-cycloalkyl, aryl or aralkyl, each aryl or aralkyl being optionally further substituted with one or more C<sub>1-4</sub>-alkyl groups and/or halogen atoms, which process comprises the asymmetric hydrogenation of 4-halo-3-oxobutyrate a 4-halo-3-oxobutyrate of formula:



wherein R<sup>1</sup>, R<sup>2</sup> and X are as defined above,

in the presence of a catalyst of a ruthenium complex comprising a chiral ligand of formula:



III.

said resultant (S)- or (R)-4-halo-hydroxybutyrate has an enantiomeric purity in the range of an enantiomeric excess (ee) ee of 93.2 percent to an enantiomeric excess (ee) ee of 98.1 percent.

Claim 2 (Previously Presented): The process of claim 1, wherein the ruthenium complex comprising a ligand of formula III comprises at least one diene, alkene or arene or polar solvent molecule as stabilizing ligand.

Claim 3 (Previously Presented): The process of claim 1, wherein the ruthenium complex comprising a ligand of formula III comprises at least one molecule of 1,5-cyclooctadiene or p-cymene as stabilizing ligand.

Claim 4 (Currently Amended): The process of claim 1, wherein the hydrogenation is carried out in a solution comprising a polar solvent selected from the group consisting of C<sub>1-4</sub>-alcohols, dimethylsulfoxide, ~~dimethylformamide~~ dimethylformamide, acetonitrile and mixtures thereof, wherein the solvent optionally contains further solvent additives.

Claim 5 (Previously Presented): The process of claim 1, wherein the counterion of the ruthenium complex is selected from the group consisting of Cl<sup>-</sup>, Br<sup>-</sup>, I<sup>-</sup>, BF<sub>4</sub><sup>-</sup>, AsF<sub>6</sub><sup>-</sup>, SbF<sub>6</sub><sup>-</sup>, PF<sub>6</sub><sup>-</sup>, ClO<sub>4</sub><sup>-</sup> and OTf<sup>-</sup>.

Claim 6 (Previously Presented): The process of claim 1, wherein the ruthenium complex is prepared by mixing the complex of formula  $[\text{Ru}_2\text{Cl}_4(\text{cym})_2]$  with the Fluoxphos ligand in a polar solvent.

Claim 7 (Currently Amended): The process of claim 1, wherein the hydrogen pressure during the reaction is in the range of 1 to 60 and.

Claim 8 (Previously Presented): The process of claim 2, wherein the ruthenium complex comprising a ligand of formula III comprises at least one molecule of 1,5-cyclooctadiene or *p*-cymene as stabilizing ligand.

Claim 9 (Previously Presented): The process of claim 2, wherein the hydrogenation is carried out in a solution comprising a polar solvent selected from the group consisting of  $\text{C}_{1-4}$ -alcohols, dimethylsulfoxide, dimethylformamide, acetonitrile and mixtures thereof, wherein the polar solvent optionally contains further solvent additives.

Claim 10 (Previously Presented): The process of claim 3, wherein the hydrogenation is carried out in a solution comprising a polar solvent selected from the group consisting of  $\text{C}_{1-4}$ -alcohols, dimethylsulfoxide, dimethylformamide, acetonitrile and mixtures thereof, wherein the polar solvent optionally contains further solvent additives.

Claim 11 (Previously Presented): The process of claim 2, wherein the counterion of the ruthenium complex is selected from the group consisting of  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{BF}_4^-$ ,  $\text{AsF}_6^-$ ,  $\text{SbF}_6^-$ ,  $\text{PF}_6^-$ ,  $\text{ClO}_4^-$  and  $\text{OTf}^-$ .

Claim 12 (Previously Presented): The process of claim 8, wherein the counterion of the ruthenium complex is selected from the group consisting of  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{BF}_4^-$ ,  $\text{AsF}_6^-$ ,  $\text{SbF}_6^-$ ,  $\text{PF}_6^-$ ,  $\text{ClO}_4^-$  and  $\text{OTf}^-$ .

Claim 13 (Previously Presented): The process of claim 10, wherein the counterion of ruthenium complex is selected from the group consisting of  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{BF}_4^-$ ,  $\text{AsF}_6^-$ ,  $\text{SbF}_6^-$ ,  $\text{PF}_6^-$ ,  $\text{ClO}_4^-$  and  $\text{OTf}^-$ .

Claim 14 (Previously Presented): The process of claim 9, wherein the counterion of ruthenium complex is selected from the group consisting of  $\text{Cl}^-$ ,  $\text{Br}^-$ ,  $\text{I}^-$ ,  $\text{BF}_4^-$ ,  $\text{AsF}_6^-$ ,  $\text{SbF}_6^-$ ,  $\text{PF}_6^-$ ,  $\text{ClO}_4^-$  and  $\text{OTf}^-$ .

Claim 15 (Previously Presented): The process of claim 2, wherein the ruthenium complex is prepared by mixing the complex of formula  $[\text{Ru}_2\text{Cl}_4(\text{cym})_2]$  with the Fluoxphos ligand in a polar solvent.

Claim 16 (Previously Presented): The process of claim 8, wherein the ruthenium complex is prepared by mixing the complex of formula  $[\text{Ru}_2\text{Cl}_4(\text{cym})_2]$  with the Fluoxphos ligand in a polar solvent.

Claim 17 (Previously Presented): The process of claim 9, wherein the ruthenium complex is prepared by mixing the complex of formula  $[\text{Ru}_2\text{Cl}_4(\text{cym})_2]$  with the Fluoxphos ligand in a polar solvent.

Claim 18 (Previously Presented): The process of claim 14, wherein the ruthenium complex is prepared by mixing the complex of formula  $[\text{Ru}_2\text{Cl}_4(\text{cym})_2]$  with the Fluoxphos ligand in a polar solvent.

Claim 19 (Previously Presented): The process of claim 2, wherein the hydrogen pressure during the reaction is in the range of 1 to 60 bar.

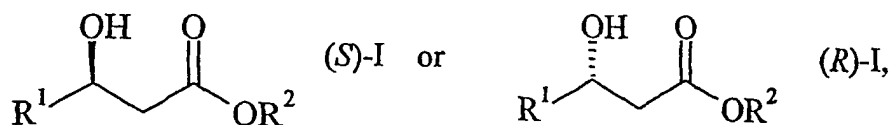
Claim 20 (Previously Presented): The process of claim 8, wherein the hydrogen pressure during the reaction is in the range of 1 to 60 bar.

Claim 21 (Previously Presented): The process of claim 9, wherein the hydrogen pressure during the reaction is in the range of 1 to 60 bar.

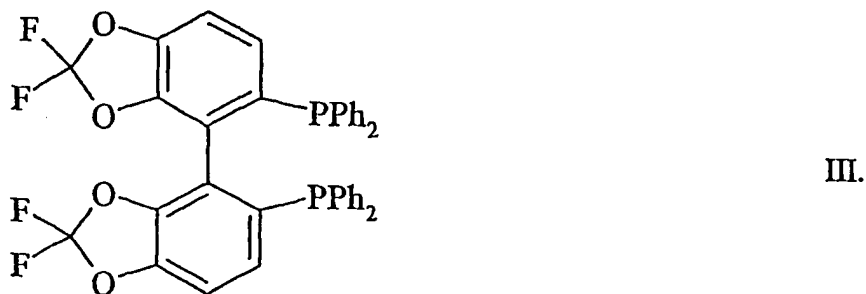
Claim 22 (Previously Presented): The process of claim 14, wherein the hydrogen pressure during the reaction is in the range of 1 to 60 bar.

Claim 23 (Previously Presented): The process of claim 1, wherein the hydrogen pressure during the reaction is in the range of 2 to 35 bar.

Claim 24 (New): A process comprising asymmetric hydrogenating a 4-halo-3-oxobutyrates of formula:



wherein  $\text{R}^1$  is  $\text{CH}_2\text{X}$ ,  $\text{CHX}_2$  or  $\text{CX}_3$  and X independently represents Cl and/or Br and wherein  $\text{R}^2$  is  $\text{C}_{1-6}$ -alkyl,  $\text{C}_{3-8}$ -cycloalkyl, aryl or aralkyl, each aryl or aralkyl being optionally further substituted with one or more  $\text{C}_{1-4}$ -alkyl groups and/or halogen atoms, in the presence of a catalyst of a ruthenium complex comprising a chiral ligand of formula:



an enantiomerically pure (S)- or (R)-4-halo-3-oxobutyrates of the formula:



wherein  $\text{R}^1$ ,  $\text{R}^2$  and X are as defined above, is prepared,

the resultant (S)- or (R)-4-halo-hydroxybutyrate has an enantiomeric purity of an enantiomeric excess (ee) ee of at least 90 percent.